<u>What is claimed is</u>:

1   1.   A method comprising determining a power savings level for a mobile station
2   based on an amount of data traffic.

1   2.   The method of claim 1 further comprising determining the amount of data
2   traffic as a percentage of traffic activity within a time interval.

1   3.   The method of claim 1 wherein determining a power savings level comprises
2   determining a time interval for the mobile station to sleep.

1   4.   The method of claim 3 wherein determining a time interval for the mobile
2   station to sleep comprises comparing a desired sleep interval and a required wake-
3   up time to receive broadcast and multicast packets.

1   5.   The method of claim 3 wherein the time interval for the mobile station to
2   sleep is expressed as a number of 802.11 compliant beacon intervals.

1   6.   The method of claim 5 wherein the method is performed within a beacon
2   monitor task run in response to an interrupt caused by a Target Beacon
3   Transmission Times (TBTT) timer.

1   7.   The method of claim 5 wherein determining a time interval for the mobile
2   station to sleep comprises comparing a Delivery Traffic Indication Message (DTIM)
3   count within a received beacon with a time interval associated with the power
4   saving level.

1   8.   A method comprising:
2   determining a desired sleep interval to sleep to save power;

3   determining a broadcast time to wake up to receive packets from an access

4 point; and

5   setting a wake-up time based on the desired sleep interval and the broadcast

6 time.

1 9. The method of claim 8 wherein determining a desired sleep interval

2 comprises determining a desired number of beacon intervals to sleep.

1 10. The method of claim 8 wherein determining a desired sleep interval

2 comprises determining a desired number of beacon intervals to sleep based, at least

3 in part, on a volume of data traffic.

1 11. The method of claim 10 wherein determining a desired sleep interval further

2 comprises selecting one of a plurality of power savings levels based on the volume

3 of data traffic.

1 12. The method of claim 8 wherein determining a broadcast time comprises

2 examining a Traffic Indication Map (TIM) element within an 802.11 compliant

3 beacon.

1 13. The method of claim 8 wherein setting a wake-up time comprises setting the

2 wake-up time to the end of one desired sleep interval when the broadcast time is

3 more than two desired sleep intervals in the future.

1 14. The method of claim 8 wherein setting a wake-up time comprises setting the

2 wake-up time to the broadcast time when the broadcast time is less than two desired

3 sleep intervals in the future.

1 15. An apparatus having a machine-readable medium with instructions stored

2 thereon that when accessed, result in a machine performing:

3   waking up a mobile station to receive a beacon;

4   evaluating traffic activity; and

5   setting a power savings level for the mobile station based on the traffic

6 activity.

1 16.   The apparatus of claim 15 wherein evaluating traffic activity comprises

2 determining a percentage of traffic time over a time interval.

1 17.   The apparatus of claim 16 wherein the power savings level may be set

2 differently each time the traffic activity is evaluated.

1 18.   The apparatus of claim 15 further comprising setting a sleep time associated

2 the power savings level.

1 19.   The apparatus of claim 15 wherein setting a power savings level comprises

2 determining a number of beacon intervals for the mobile station to sleep.

1 20.   The apparatus of claim 19 wherein determining a number of beacon intervals

2 for the mobile station to sleep comprises comparing a desired number of beacon

3 intervals with a Delivery Traffic Indication Message (DTIM) count.

1 21.   An apparatus configured to communicate in an 802.11 wireless network, and

2 configured to sleep for a number of beacon intervals based on traffic volume.

1 22.   The apparatus of claim 21 comprising a network interface card.

1 23.   The apparatus of claim 21 comprising a mobile computer.

1 24.   An electronic system comprising:

2   a plurality of antennas;

3   a radio interface coupled to the plurality of antennas;

4   a processor coupled to the radio interface; and

5   a static random access memory with instructions stored thereon that when

6 accessed, result in the processor performing:

7   waking up an apparatus to receive a beacon, evaluating traffic activity, and

8 setting a power savings level for the apparatus based on the traffic activity.

1 25. The electronic system of claim 24 wherein setting a power savings level

2 comprises determining a time interval for the apparatus to sleep.

1 26. The electronic system of claim 25 wherein determining a time interval for

2 the apparatus to sleep comprises comparing a desired sleep interval and a required

3 wake-up time to receive multicast packets.

1 27. The electronic system of claim 25 wherein the time interval for the apparatus

2 to sleep is expressed as a number of beacon intervals.